

FHWA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.	SEE TITLE SHEET		

#### Intersection Operation

This intersection is to initially operate in a NEMA four phase, semi-traffic-actuated mode. There will be an exclusive/permissive left turn for the southbound movement of MD 355 and a right turn overlap for the westbound to northbound movement. The through movements for MD 355 will operate concurrently. The Watkins Mill Road movement will operate alone.

An eight phase, full-traffic-actuated, solid state digital controller with seven two-channel time delay output loop detector amplifiers housed in a base mounted cabinet are to be installed at this location.

#### Construction Details

- A. Install base mounted cabinet/controller with all necessary equipment (Note: two 4 in., 90-degree (Schedule 40) PVC bends, one 3 in., 90-degree (Schedule 40) PVC bend, and one 2 in., 90-degree (Schedule 80) PVC bend).
- B. Install 12 in. x 30 ft. steel strain pole with 15 ft. luminaire arm, 250 watt HPS luminaire, and all necessary equipment for an overhead type B-14 electrical service (Note: two 3 in., 90-degree (Schedule 40) PVC bends, and one 2 in., 90-degree (Schedule 80) PVC bend). [Use four 1-3/4 in. x 90 in. anchor bolts.]
- C. Install 12 in. x 30 ft. steel strain pole with 20 ft. luminaire arm, and 250 watt HPS luminaire (Note: one 2 in., 90-degree (Schedule 40) PVC bend). [Use four 1-3/4 in. x 90 in. anchor bolts.]
- D. Install handhole.
- E. Install 1 in. liquid tight, non-metallic conduit for loop detector sleeve.
- F. Install 2 in. polyvinyl chloride (Schedule 40) electrical conduit - trenched.
- G. Install 2 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched.
- H. Install 3 in. polyvinyl chloride (Schedule 80) electrical conduit - slotted.
- J. Install 3 in. polyvinyl chloride (Schedule 40) electrical conduit - trenched.
- K. Install 4 in. polyvinyl chloride (Schedule 40) electrical conduit - trenched.
- L. Install 4 in. polyvinyl chloride (Schedule 80) electrical conduit - slotted.
- M. Install 6 ft. x 30 ft. quadrupole type vehicle loop detector (2-4-2 turns).
- N. Install 3/8 in. steel span wire and vehicle signal heads as shown.
- O. Install 3/8 in. steel span wire, 1/4 in. tether wire, vehicle signal head, and signs as shown.
- P. Install 3/8 in. steel span wire, 1/4 in. tether wire, vehicle signal heads (polycarbonate) and sign as shown (Note: Provide approximately 50 ft. of additional electrical cable for each signal head for use during roadway construction phasing).
- Q. Install 3/8 in. steel span wire and vehicle signal heads as shown (Note: Provide approximately 50 ft. of additional electrical cable for each signal head for use during roadway construction phasing).
- R. Remove existing electrical service.
- S. Use existing handhole. Pull back existing interconnect cable and re-run in new conduit to new controller.
- T. Remove existing handhole.
- U. Cap and abandon existing conduit.
- V. Remove existing steel pole and all attached equipment.

#### Equipment List "A"

Equipment to be supplied by the SHA.

Quantity	Unit	Description
1	EA	Eight phase, full-traffic-actuated, solid state digital controller with LAU panel (to be used in a NEMA four phase semi-traffic-actuated mode) housed in a base mounted cabinet.
7	EA	Two-channel time delay output vehicle loop detector amplifier and harness.
1	EA	8 in./12 in., one-way, five section (8 in. R,Y,G/12 in. YA,GA) adjustable traffic signal head - span wire mount.
4	EA	12 in., one-way, three section (R,Y,G) adjustable traffic signal head - span wire mount.
2	EA	12 in., one-way, three section (R,Y,G) polycarbonate adjustable traffic signal head - span wire mount.
1	EA	12 in., one-way, five section (R,Y,YA,G,GA) polycarbonate adjustable traffic signal head - span wire mount.
1	EA	12 in., one-way, five section (R,Y,YA,G,GA) adjustable traffic signal head - span wire mount.
33	SF	Sheet aluminum signing. [To consist of one 36 in. x 42 in. R10-12 two 30 in. x 36 in. R3-5(L), and one 30 in. x 36 in. R3-5(R) signs for span wire mounting.]

#### Equipment List "B"

Equipment to be furnished and/or installed by the Contractor.

Quantity	Unit	Description
5	CY	Test pit excavation.
4	EA	30 ft. steel strain pole.
8	EA	Handhole.
500	LF	Sawcut for signal loop detector.
1325	LF	Loop detector wire (No. 14 A.W.G.) encased in flexible tubing.
475	LF	2-conductor (aluminum shielded) electrical cable (No. 14 A.W.G.).
750	LF	2-conductor electrical tray cable (No. 12 A.W.G.).
200	LF	5-conductor electrical cable (No. 14 A.W.G.).
1325	LF	7-conductor electrical cable (No. 14 A.W.G.).
100	LF	Bare copper ground wire (No. 6 A.W.G.)
90	LF	3-wire electrical cable (No. 4 A.W.G.) for electrical services.
450	LF	1/4 in. tether wire.
600	LF	3/8 in. steel span wire.
50	LF	1 in. liquid tight, flexible, non-metallic conduit for loop detector sleeve.
100	LF	2 in. polyvinyl chloride (Schedule 40) electrical conduit - trenched.
20	LF	2 in. polyvinyl chloride (Schedule 80) electrical conduit - trenched.
20	LF	3 in. polyvinyl chloride (Schedule 40) electrical conduit - trenched.
150	LF	3 in. polyvinyl chloride (Schedule 80) electrical conduit - slotted.
100	LF	4 in. polyvinyl chloride (Schedule 80) electrical conduit - slotted.
140	LF	4 in. polyvinyl chloride (Schedule 40) electrical conduit - trenched.
14	CY	Concrete foundation for signal equipment.
8	EA	Ground rod - 3/4 in. diameter x 10 ft. length.
1	EA	15 ft. Luminaire arm with 250 watt HPS luminaire.
3	EA	20 ft. Luminaire arm with 250 watt HPS luminaire.
1	EA	Control and distribution equipment (120/240V, one phase, three wire system).
9	EA	Install traffic signal head - span wire mount.
33	SF	Install sheet aluminum signing - overhead mount.
1	EA	Install base mounted cabinet.
LS	LS	Removal of existing traffic signal equipment.

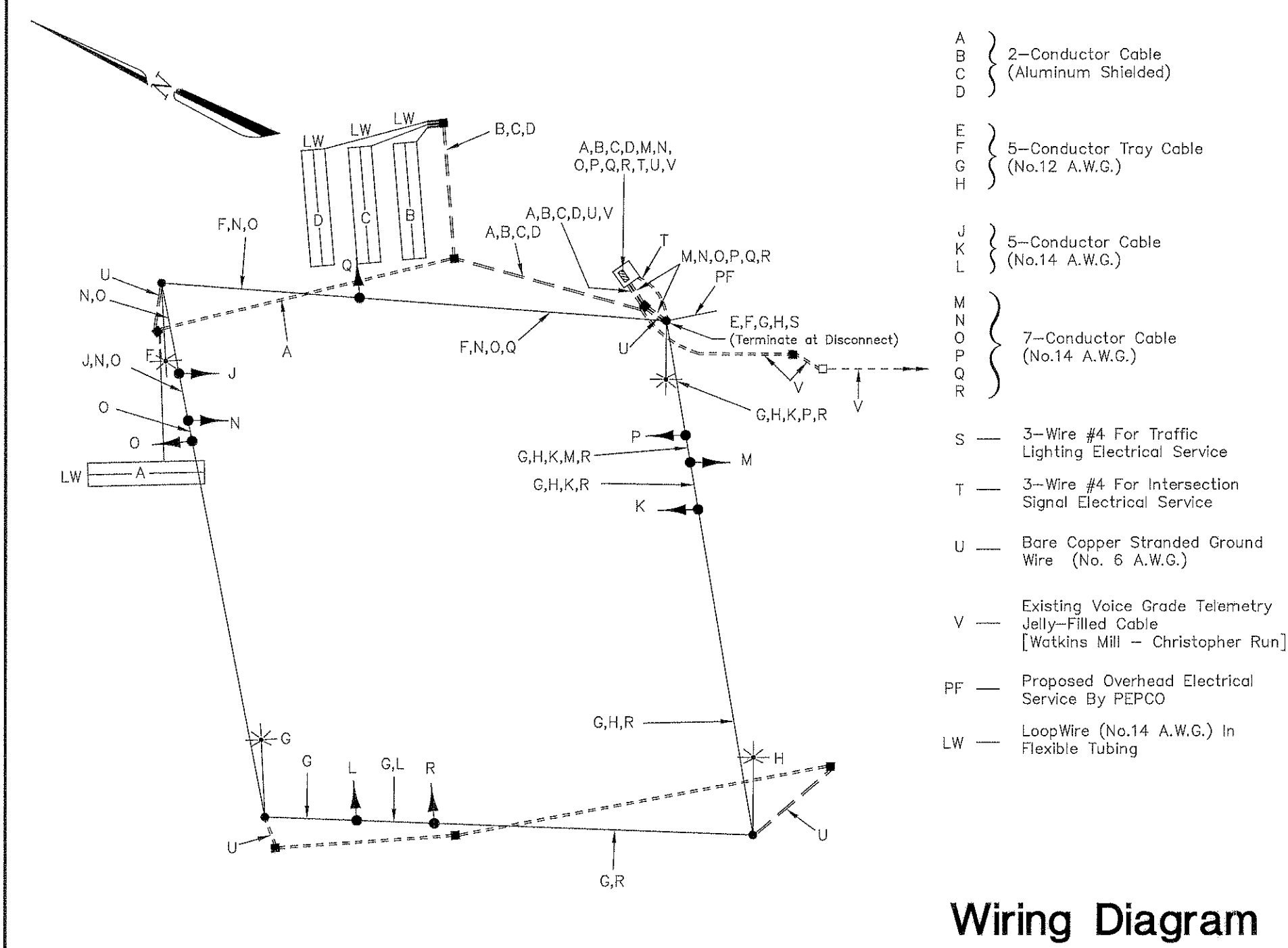
#### Equipment List "C"

Equipment to be removed by the contractor and delivered to the MCDOT Systems Technical Center, 1283 Seven Locks Road, Building "C", Rockville, MD. 20852. A twenty-four (24) hour notice is required prior to delivery. Contact Mr. Emil Wolanin at (301) 217-2208.

Quantity	Unit	Description
1	EA	Twin Mast Arm pole and Arms.
1	EA	Mast Arm pole and Arm.
7	EA	Traffic Signal Head.
3	EA	Overhead Mounted Sign.
1	EA	Pole Mounted cabinet/controller.

	1	2	3	4	5	6	7	8	9	
Phase 2 & 6	G	G	G	G	G	G	R	R	R	←
6 Change	Y	Y	Y	G	G	G	R	R	R	←
Phase 2 & 5	R	R	R	←G	←G	G	R	R	←R	←
2 & 5 Change	R	R	R	←Y	←Y	Y	R	R	←Y	←
Phase 4	R	R	R	R	R	R	G	G	G	↓
4 Change	R	R	R	R	R	R	Y	Y	Y	↓
Flashing Operation	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	↕

#### Phase Chart



#### Wiring Diagram

Maintenance of Traffic  
Phase 1, Stage 2

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MDOT - STATE HIGHWAY ADMINISTRATION

Office of Traffic & Safety

TRAFFIC ENGINEERING DESIGN DIVISION

SIGNAL # 15035516.16

MD 355 at Watkins Mill Road

COUNTY: MONTGOMERY

DRAWN BY: W. Richardson

DES. BY: W. Richardson

CHK. BY: S. Renzi

DATE: March, 1985

F.A.P. NO. N/A

SCALE: N/A

S.H.A. NO. 855-25006

TS/STD. NO.

2083A-X1-GI

SHEET NO.

OF

Revision 'A'



REVISIONS	APPROVALS
	CHIEF, SIGNAL DESIGN SECTION
	ASST. DISTRICT ENGINEER, TRAFFIC
	CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
	DIRECTOR, OFFICE OF TRAFFIC & SAFETY